

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 30

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte
PAUL RICH,
and DAVID THOMAS

Appeal No. 2000-1082
Application No. 08/727,303

ON BRIEF

Before GARRIS, LIEBERMAN AND DELMENDO, Administrative Patent Judges.

LIEBERMAN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner refusing to allow claims 1 through 15, which are all the claims pending in this application.

THE INVENTION

The invention is directed to a method of processing a workpiece having a multiplicity of recesses. A first layer of material is deposited on the workpiece so as to completely close the recesses and leave voids beneath the first layer. Thereafter sufficient temperature and pressure is applied so as to cause the first layer to deform without melting and fill the voids. Furthermore, a second layer is deposited atop the first layer. Additional limitations are disclosed in the following illustrative claim.

THE CLAIM

Claim 1 is illustrative of appellants' invention and is reproduced below.

1. A method of processing a workpiece having a multiplicity of recess formed in an exposed surface, the multiplicity of recess having respective openings, said method comprising:

depositing a first layer of material on the exposed surface until the first layer extends over all the recesses to close completely the openings of all the recesses in the exposed surface and to form respective voids within the recesses beneath the first layer;

increasing a pressure and a temperature applied to the wafer and the first layer after the respective voids have been formed with the recesses beneath the first layer, to cause parts of the first layer to deform, without melting, to fill the voids in the respective recesses; and

depositing a second layer of material on top of the first layer after said depositing of the first layer and either prior to or during application of the increased temperature and pressure.

THE REFERENCES OF RECORD

As evidence of obviousness, the examiner relies upon the following references:

Dobson et al. (Dobson '344) (European Patent Application)	516,344	Dec. 2, 1992
Dobson et al. (Dobson '938) (PCT Patent Application)	WO 96/02938	Feb. 1, 1996

THE REJECTIONS¹

Claims 1 through 15 stand rejected under 35 U.S.C. § 112, first paragraph as containing subject matter which was not described in the specification in such a way as to enable one skill in the art to which it pertains, or with which it is most nearly connected to make and/or use the invention.

Claims 1, and 9 through 15 stand rejected under 35 U.S.C. § 102(a) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being unpatentable over Dobson.

OPINION

We have carefully considered all of the arguments advanced by the appellants and the examiner and agree with the appellants that the rejection of claims 1 through 15 under 35 U.S.C. § 112, first paragraph is not well founded. Accordingly, we reverse this

¹The rejection of claims 2, 4, 5, 7 and 8 under §§ 102(a)/103(a) have been withdrawn. The rejection of claims 1 through 15 under § 103(a) over Dobson in view of either Lee, Fujii or Mueller is likewise withdrawn.

rejection. We agree with the examiner that the rejection of the claims on the grounds of anticipation and obviousness are well founded. Accordingly, we affirm these rejections.

With respect to the rejection over Dobson, the appellants deem that “claims 1, 4, 5, 7, and 9-15 stand or fall together.” See Brief, page 4. In as much as the only claims remaining under rejection include claims 1 and 9, 1-15, they stand or fall together.² Accordingly, we select claim 1, an independent process claim as representative of the claimed subject matter and limit our consideration thereto. See 37 CFR §1.192(c)(7)(1997).

The Rejection under § 112.

It is the examiner’s position that, “not anywhere in the specification do Applicants show the details and conditions of such pressure and temperature such that the layers can be deposited over the recesses. It is not clear from the evidence of record how one of ordinary skill in the art would perform of [sic, or] carry out the process based upon the mere disclosure of raised temperature and pressure, this condition appears to be critical such that the first layer deforms without melting to fill the recesses.” See the Final Rejection, page 2, paper No. 21 dated, February 01, 1999. In addition to the aforesaid rejection on the grounds of lack of enablement, the examiner objected to the incorporation of the subject matter from the Dobson application as being “new matter.” See Answer, pages 4-6. With respect to this rejection, we disagree with the examiners analysis and

²The rules provide for grouping of claim only in appellants’ principal Brief.

conclusions.

We turn first to the examiner's rejection under the first paragraph of 35 U.S.C. § 112, first paragraph, on the grounds of lack of enablement. When rejecting a claim under the enablement requirement of section 112, the PTO bears the initial burden of setting forth a reasonable explanation as to why it believes the scope of protection provided by the claimed subject matter is not adequately enabled by the description of the invention provided in the specification of the application. This includes providing sufficient reasons for doubting any assertions in the specification as to the scope of enablement. If this burden is met, the burden then shifts to the appellants to provide suitable proofs that the specification is enabling. *In re Wright*, 999 F.2d 1557, 1561-62, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993); *In re Marzocchi*, 439 F.2d 220, 223-24, 169 USPQ 367, 369-70 (CCPA 1971).

The examiner's position is that the claimed subject matter is not enabled in the specification, because the original specification fails to suggest the specific temperature and pressure relationship to arrive at the invention of the claimed subject matter. See Answer, page 8. However, as the examiner readily admits the specific temperature and pressure conditions required by the claimed subject matter are known, taught and disclosed in the prior art. See Answer, page 5 referring to Dobson '344 and column 3, lines 11-15 of said reference. One of ordinary skill in the art would unequivocally understand from a reading of the specification that the temperature and pressure conditions utilized were well

known in the art. Accordingly, the person having ordinary skill in the art could easily determine the precise temperature and pressure conditions needed to treat the first layer in order to fill the recesses as required by the claimed subject matter.

Based upon the above considerations, the examiner has not met the burden of showing lack of enablement. Accordingly, the rejection of the claims on the grounds of lack of enablement is not sustained.

The Rejection under §§ 102 and 103

In order for a claimed invention to be anticipated under 35 U.S.C. § 102(b), all of the elements of the claim must be found in one reference. Scripps Clinic & Research Found. v. Genentech Inc., 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991).

Dobson '938 is directed to a method of filling holes in surfaces which are deposited on semiconductor substrates. See page 1, lines 2-5. We find, that one embodiment of the invention is directed to "laying a metallic foil across the exposed surface of the film to bridge the recesses, heating the foil and applying pressure to the foil, whereby the foil or material therefrom is forced into the recesses to fill them." See page 2, lines 4-7. We find that the foil is preferably a highly conducting ductile metal such as aluminum. See page 2, lines 21-22. We find that a barrier or lubricating layer may be deposited on the exposed surface of the film prior to the foil being laid thereon. We conclude therefrom that the barrier or lubricating layer may also be applied on the surface of the film subsequent to the

foil being laid thereon. In this respect we further find that, “[o]ne surface of the foil may be coated with one or more barrier and/or lubricating layers and these may be Titanium or Titanium Nitride or a combination thereof.” See page 3, lines 16–18. These layers are constituted opposite to the side where the surface of aluminum covers the vias. See Figure 3, numerals 14, 15 and 16. Although the foils “can be pre-prepared,” page 3, line 24, it is unequivocally clear that the foils may be prepared sequentially, as preparation constitutes but a single embodiment of the invention. Our position is supported by the claim language wherein the first claim requiring prior deposition is claim 7. In contrast claim 8 requires a deposition of one or more layers in the absence of a requirement for prior deposition.

As to the stripping of the carrier argued by the appellants, we find that, “the method may further include the step of stripping the carrier layer.” See page 3, lines 6-7. However, “if, for example mechanical pressure is to be applied then there may be benefits in retaining the carrier layer at that stage.” See page 3, lines 9-11. We accordingly, conclude that the stripping of the additional layers is merely optional.

Based upon the above findings and analysis, we conclude that the examiner has established a *prima facie* case of anticipation with respect to the claimed subject matter.

We shall also sustain the rejection under 35 U.S.C. § 103. It is well settled that the ultimate obviousness is lack of novelty. The claims cannot have been anticipated and not have been obvious. *In re Fracalossi*, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982). It is further our conclusion that it would have been obvious to one of

ordinary skill in the art to have deposited one or more additional layers of materials subsequent to the deposition of the first layer based upon the teachings and suggestion of Dobson and our findings and analysis supra.

Other Matters

In the event of further prosecution, the examiner should consider a rejection of the claims over Dobson '344 having a publication date of December 02, 1992, which is available under § 102(b). The examiner should also consider a rejection over Dobson '289, issued August 1999 with antecedent basis to Dobson '344 of record.

DECISION

The rejection of claims 1 through 15 under 35 U.S.C. § 112, first paragraph as containing subject matter which was not described in the specification in such a way as to enable one skill in the art to which it pertains, or with which it is most nearly connected to make and/or use the invention is reversed.

The rejection of claims 1, and 9 through 15 under 35 U.S.C. § 102(a) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being unpatentable over Dobson under 35 U.S.C. § 103(a) is affirmed.

The decision of the examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may

be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

BRADLEY R. GARRIS
Administrative Patent Judge

PAUL LIEBERMAN
Administrative Patent Judge

ROMULO H. DELMENDO
Administrative Patent Judge

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JONES VOLENTINE, L.L.P.
12200 SUNRISE VALLEY DRIVE
SUITE 150

Appeal No. 2000-1082
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